

Influence of the Cooking Technique on the Iodine Content of Frozen Hake

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Abstract : The high nutritional value associated with seafood is related to the presence of essential trace elements. Moreover, seafood is considered an important source of energy, proteins, and long-chain polyunsaturated fatty acids. Generally, seafood is consumed cooked. Consequently, the nutritional value could be degraded. Seafood, such as fish, shellfish, and seaweed, could be considered as one of the main iodine sources. The deficient or excessive consumption of iodine could cause dysfunction and pathologies related to the thyroid gland. The main objective of this work is to evaluate iodine stability in hake (*Merluccius*) undergone different culinary techniques. The culinary process considered were: boiling, steaming, microwave cooking, baking, cooking en papillote (twisted cover with the shape of a sweet wrapper) and coating with a batter of flour and deep-frying. The determination of iodine was carried by Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Regarding sample handling strategies, liquid-liquid extraction has demonstrated to be a powerful pre-concentration and clean-up approach for trace metal analysis by ICP techniques. Extraction with tetramethylammonium hydroxide (TMAH reagent) was used as a sample preparation method in this work. Based on the results, it can be concluded that the stability of iodine was degraded with the cooking processes. The major degradation was observed for the boiling and microwave cooking processes. The content of iodine in hake decreased up to 60% and 52%, respectively. However, if the boiling cooking liquid is preserved, this loss that has been generated during cooking is reduced. Only when the fish was cooked by following the cooking en papillote process the iodine content was preserved.

Keywords : cooking process, ICP-MS, iodine, hake

Conference Title : ICFSN 2019 : International Conference on Food Science and Nutrition

Conference Location : Madrid, Spain

Conference Dates : March 26-27, 2019